Reprinted from Vol. XXXII of the 'Clinical Society's Transactions.']

6.

Case of Acute Hæmorrhagic Pancreatitis. By A. D. Fripp, M.S., and J. H. Bryant, M.D. *Read December* 9, 1898.

FOR the notes of this case I am indebted to the excellent report by the clinical clerk, Mr. W. J. Lindsay.

D. D., æt. 42, admitted into Guy's Hospital, September 8, 1898, for severe abdominal pain. Family history unimportant.

Personal history.—He is said to have had an epileptic fit nineteen years ago, and to have been subject to severe attacks of "colic" once or twice a year for some years. The pain is always severe enough to "double him up," but it has never been nearly so severe as in this attack. For several months the bowels have acted three times a day or more, sometimes seven times and nearly every action has contained "a jelly-like substance." There is no history of alcoholic excess; by profession he is a furniture dealer, and with the above exception he has always enjoyed good health.

Present illness.—He was in his usual health when, on September 14, he went to a dinner party and partook amongst other things, of veal, roast beef, and greengages.

On the 16th, at 8.30 A.M. he complained of "colic" which recurred about every half hour throughout the day and "doubled him up" each time. He refused his food but was not sick. His bowels acted four times. In the evening he took an ounce of castor oil and some opium. He spent a restless night.

On the 17th, his bowels acted very slightly, early in the morning. While his wife was fetching the doctor he got up, took a hot bath, dressed himself, went downstairs and out into the garden. He came back into the house in a few minutes and was found at 11.30 A.M. by Dr. Blackler, of Redhill, doubled up with pain, with a very rapid pulse, cold clammy skin, blue lips, and a subnormal temperature. His abdomen was rather rigid, but was moving with respiration and was not tender.

Dr. Blackler at first suspected lead poisoning, especially as the patient had recently been engaged in re-painting his own house, but later he inclined to the diagnosis of acute intestinal obstruction. A quarter of a grain of morphia subcutaneously procured some relief, but he did not like fomentations, saying that they increased the pain.

An hour later an enema was given but without result. When seen again in the evening it was found that as soon as the effect of the morphia had passed off, the pain had returned, and the point of its maximum intensity was above and to the left of the umbilicus. He had taken some drachm doses of olive oil with five minims of tincture of belladonna in each, and had vomited twice. The pulse and the temperature and the skin were now normal.

Mr. MacIlwaine, of Redhill, saw him with Dr. Blackler, and suggested the possibility of the diagnosis being acute pancreatitis of the hæmorrhagic variety. It was determined to give him another injection of morphia and to send him up to Guy's that night.

On the 18th, at 1 A.M., he arrived at the hospital and I saw him.

On admission.—Pulse 100. Respiration 24. Temperature 96°. He is a well-developed, rather stout man. The face is congested, and of a somewhat earthy colour. The pain and restlessness are so great that it is difficult to get sensible answers to questions. His low groaning is almost incessant. The pain is chiefly above the umbilicus. The abdomen is somewhat full, but not distended nor hard; it moves fairly with respiration; it is not tender to pressure. The knees are not drawn up except in the acutest paroxysms of pain. There is no abnormal area of resonance or dulness, nor is there any abnormal lump or peristaltic wave to be discovered. The tongue is very dry, red, not brown, and not furred. The lips are rather blue. The face is congested, and wears an anxious and exhausted expression. The gums show no blue line. The hands are cold and inclined to be moist, and the fingers are rather bluish under the nails. The pupils are small and do not react well. The knee-jerks and reflexes are normal. Urine 1020, not unduly dark; no albumen, sugar, or blood. It was not examined for leucin and tyrosin.

Micturition.—No history of any abnormality could be obtained. The pulse is regular, fairly full, 100 per minute. The respiration and the circulatory system presented nothing abnormal.

I had no doubt that the right thing to do was at once to perform an exploratory laparotomy, but I felt considerable doubt what we should find, as is proved by the clerk's entry in the report to the effect that I did so "after considerable discussion." We discussed all the causes of severe colic, and among them we discussed the various forms of acute pancreatitis, of which disease we have had several cases at Guy's during the last few months.

At 2 A.M., one hour after admission, I opened the abdomen below the umbilicus, and examined the whole length of the intestinal canal. There were no obstruction. The cæcum and appendix, the kidneys, the gall-bladder and the pelvis were normal. The peritoneum appeared quite healthy. Four abnormal conditions were noted :

1. There was a good deal of blood-stained peritoneal fluid, and it seemed to be particularly accumulated in the upper part of the abdomen.

2. The subperitoneal and omental fat were very plentiful, and to this, I think, was due the fulness that was noted on palpation. That in the omentum had a curious shotty feel, but no necrotic nodules could be seen.

3. While passing the ileum under review, a piece about two feet long was found to be contracted down to the size of, or nearly, a carpenter's flat lead pencil.

4. In three places, some feet apart, an inch or two of the small intestine was blue, but otherwise healthy. There was nowhere any distension of the intestine.

As none of these conditions gave any further indication I closed the wound, and the patient was put back to bed. He lingered for forty-eight hours, frequent injections of morphia being given to combat the pain, and he died suddenly at 2 A.M. on the 20th, immediately after vomiting a large quantity of green liquid.

My colleague, Dr. Bryant, who made the post-mortem examination, will report to you the result of his investigations. I will only add that I am sorry I have been unable to do more than record the clinical facts of one more case of this obscure disease.

Death took place at 2 A.M. on September 20, 1898, and the autopsy was performed eleven and a half hours after.

The body was large and had a somewhat bloated appearance. There was no anasarca and no sign of any external injuries. The brain and spinal cord were not examined. A few fine, filamentous, fibrous pleural adhesions were found over both lungs. Both lungs were œdematous and engorged with blood. The larynx, trachea, bronchi, bronchial glands, diaphragm, mediastina, and pericardium appeared to be quite normal. The heart weighed 13 oz. The left ventricle was a little hypertrophied. All the valves, the pulmonary artery and aorta, were healthy in appearance. The abdominal wall was very thick, owing to the great increase of subcutaneous and subperitoneal fat. On opening the peritoneal cavity, a large fatty omentum was seen covering all over the intestines; in the fat a very great number of opaque, round, and irregular-shaped milky, dead-white looking spots of fat necrosis were seen, the smallest being about the size of pin pricks and the largest about the size of split peas. A smaller number of opaque, golden-yellow coloured spots of fat necrosis were also seen. Similar dead-white and golden-yellow patches of necrosis were found in the subperitoneal fat covering the intestines and abdominal parietes, in the mesentery, meso-colon, and the fat around the pancreas; in this last-mentioned position they were most numerous. A few ounces of blood-stained fluid were found in the peritoneal cavity. Extensive hæmorrhage into the fatty tissues in the immediate neighbourhood of the pancreas was found, especially in the gastro-splenic omentum, the root of the mesentery, and in the perinephritic fat on the right side. The pancreas itself was about twice its normal size, and it felt very hard and indurated. On separating it from the adjacent structures, it had the appearance of an organ tightly distended with blood, and was of a dull, dark, purplish colour, especially in the middle part or body. A longitudinal section was made, and the interlobular tissue was seen to be infiltrated with blood; the gland tissue itself was of a dull deep-red colour, as if actually inflamed and infiltrated with blood. The fat surrounding the organ and that seen in the section was in places infiltrated with blood, numerous large dead white areas of fat necrosis were visible, and also several circular and oval patches from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch in diameter, of a dull olive-green colour, and very soft in consistence, which appeared to be areas of fat necrosis which had become gangrenous.

The mucous membrane around the cardiac orifice of the stomach was ecchymosed. There did not appear to be any catarrh of the duodenum. The pancreatic duct was not obstructed.

The small and large intestines were normal in appearance. The kidneys weighed 12 oz. and appeared to be normal.

Microscopic appearances.—Sections of the pancreas were stained with hæmatoxylin and eosin, carbo-thionin blue, methylene blue, and borax carmine and picro-nigrosin.

The most striking change noticed in all the sections was the enormous amount of blood present, which could be seen in large quantity beneath the capsule of the organ, in the interstitial tissue between the lobules, between the acini themselves, around the ducts, and in the fat cells and intercellular spaces of the periglandular connective tissues. In some of the lobules extensive blood extravasations could be seen, which had caused a disintegration of the acini, so that their cells appeared to be lying loose in the midst of the blood. The capillaries generally were over-distended with blood, and some small veins blocked with thrombi were found. No structural change was noticed in any of the blood vessels. The distribution of the blood was best shown in the specimen stained with carbo-thionin blue, the red blood-corpuscles being stained a slight greenish-blue colour, the nuclei of the leucocytes a dark violet, the gland-cells violet, and their nuclei a darker violet.

A good many patches of fat necrosis were seen in the interlobular and periglandular tissues. The glandular acini immediately adjacent to these areas were in various stages of necrosis; and beyond these, again, the cells of the acini showed cloudy swelling, and their nuclei were faintly stained and indistinct. The connective tissue between these acini showed infiltration, with deeply-stained leucocytes and red blood-corpuscles. Apart from these areas there was very little evidence of any parenchymatous inflammation, the nuclei and protoplasm of the cells staining well with the various reagents. There was no increase of fibrous tissue or general small cell infiltration between the lobules or their acini.

The pancreatic ducts were not obstructed; they contained in the central part of their lamina some granular-looking *débris*, similar in appearance to that which is usually found in a like position in sections of the normal pancreas. The nuclei and protoplasm of the epithelial cells lining these ducts stained well; no signs of inflammation, fatty degeneration, or necrosis were found. In the fibrous tissues of and around the ducts a good deal of blood was seen, but none was visible inside the ducts.

The areas of fat necrosis presented the usual features of that condition. The fat spaces were filled up with opaque granular-looking masses and fine acicular crystals, chiefly arranged in the form of rosettes; the outlines of the areolar spaces were still visible but no connective-tissue cells or their nuclei could be seen. The amount of cell-infiltration about the nodules varied considerably; around some a large number of deeply-stained, round, mononuclear cells were found, whereas none were detected in the neighbourhood of others.

In one of the sections a medium-size nerve was found cut transversely; no normal change could be detected.

The sections stained with methylene blue and carbothionin blue, when examined with $\frac{1}{12}$ inch oil immersion lens, showed a small number of rod-shaped bacilli, about two or three times as long as they were broad. They were visible in the blood between the lobules and the acini, and appeared to be generally distributed throughout the organ in these positions. There were no bacilli in the pancreatic ducts.

Sections of two of the ganglia from the pancreatico-duodenal plexus were examined, but nothing abnormal was found. Dr. Hale White and Dr. Starling, who examined the specimens, concurred with this view.

Bacteriological examination.—Cultivations were taken from the centre of the body of the pancreas, with strict precautions to prevent the possibility of any accidental contaminations. A pure culture of the *Bacillus coli communis* resulted, as will be seen by the following reactions:

The bacilli were fairly motile; the majority were in the form of short rods with rounded ends. They did not retain the stain after treatment by Gram's method.

Broth after twenty-hours, at 37° C., became cloudy, opaque, and turbid, and at the end of forty-eight hours a thick yellowish-white deposit was produced. A very good indol reaction was obtained after twenty-four hours. Gelatine was not liquefied. Abundant gas was produced after twenty-four hours in gelatin shake cultures.

On agar, at 37° C., light yellowish-white, opaque, glistening colonies were produced at the end of twenty-four hours. Litmus milk was coagulated, and an acid reaction produced in twenty-four hours. Small opaque, white, raised, glistening colonies were produced on gelatin plates at the end of twenty-four hours.

Remarks.—The pathological process in this case appears to have been one of primary acute interstitial inflammation of the pancreas, associated with the presence of the *Bacillus coli communis*, and characterised by the presence of a large amount of blood in the periglandular, interlobular, and interacinous connective tissues, and areas of fat necrosis, adjacent to which secondary inflammation and necrosis of the cells of the bordering acini of the lobules had occurred. It is interesting to note that no parenchymatous inflammation could be seen, except at the periphery of the lobules in the immediate neighbourhood of fat necrosis. The bacilli were found only where blood was present, suggesting an infection through the blood-vessels. The normal appearance of the lining cells of pancreatic ducts, and the absence of blood and bacilli inside them, make the possibility of this source of infection unlikely.

Two other cases of this disease at Guy's Hospital have been examined by Mr. Pakes, the Demonstrator of Bacteriology, and in each a pure culture of the *Bacillus coli communis* was obtained from the pancreas.

A very similar case has been fully reported by Dr. Frederick Craven Moore in the *Medical Chronicle* of August last, from the pancreas of which a pure culture of the *Bacillus coli communis* was obtained, and in which the channel of infection was thought to be the lymphatic spaces.

PRINTED BY ADLARD AND SON, BARTHOLOMEW CLOSE, E.C.